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# APRP – WATER POLICY REFORM ACTIVITY

## Contract PCE-I-00-96-00002-00
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# *WATER USER ASSOCIATION*

# *FORMATION OUTSIDE THE IRRIGATION IMPROVEMENT PROGRAM AREA*

## *REPORT NO. 9*

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**Water Policy Reform Program**
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[1] cf. Barakat, Eng. Essam F., and Max K. Lowdermilk. *Expanding Participatory Irrigation Management (PIM) for Improved System Performance in Egypt*. Cairo: EPIQ, 1998, unpublished. and, Barakat, Essam F. *Expanding Participatory Management in Egypt*. Cairo: EPIQ, 198, unpublished.

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# EXECUTIVE SUMMARY

The purpose of this report is to present the results of the work carried out in completion of Benchmark 6 of Section C of the agreement between the Government of the Arab Republic of Egypt (GOE) and USAID/Egypt for Trance II (FY 97/98). The benchmark states:

> *"The GOE will develop a policy to allow the formation of water user associations in areas that have not participated in the Irrigation Improvement Program (IIP), and begin to promote such associations."*

This document presents policy options allowing for the formation of water user associations (WUAs) in areas that have not participated in the Irrigation Improvement Program (IIP). This includes discussion on the background required to develop policy options, the objectives of such policies, and proposed new policies for establishing WUAs in non-IIP areas.

This report presents the results of a field study, which assessed stakeholder views on a number of key issues related to participatory irrigation management (PIM) in Egypt. Seven one-day focus group workshops were held during March/April in Tanta, Damanhur, Zagazig, El Minya, Mansoura, Esna, and Beni Suef. A total of 162 stakeholders participated, of which 55 were IIP and non-IIP farmers, 59 IIP engineers, and the remainder, agricultural official, extension workers, local leaders, and members of the Peoples Assembly.

It is important to understand the water user frame of reference within the purview of *participatory irrigation management* (PIM)[2]. Farmers in Egypt are responsible for maintenance of their watercourses (*mesqa*). Prior to introduction of formal irrigation improvement activities this normally involved *crisis-management* behavior which precluded collective forward planning. With the establishment of WUAs under the IIP program the focus is on *preventive* mesqa maintenance, problem solving, managing equitable water delivery from head to tail, and monitoring system abuse.

The need for WUAs in irrigated agriculture is based on principles of participatory irrigation management (PIM). Generally acknowledged benefits of participatory irrigation management include, but are not limited to:

- productivity increases,
- changes in cropping intensity,
- financial impact performance indicators,
- water-related conflict resolution, and
- environmental impact.

There are costs incurred in the implementation of participatory irrigation management. As expressed by farmers in the IIP[3], these include cash contributions, labor and other in-kind contributions.

[2] *Participatory irrigation management* is the widely accepted general rubric that designates farmers active involvement in irrigation and water management at all levels of an irrigation water delivery system. It is often referred to in the literature and by formal agencies in an abbreviated form, i.e. PIM.
[3] At the seven focus group workshops.

The effects of WUA participation is often determined by the way responsibilities are allocated internally. A simple *before and after* scenario analysis will not provide a clear picture of levels of impact. What is needed is careful and systematic evaluation of the contribution of WUAs in the overall management process, using a network of cross-sectional comparisons between systems with and without strong WUAs and a time series of the same systems before and after the WUA organizing process. Positive benefits accrue when costs related to information transfer are reduced, when the number of shareholders is small and is well represented, and when WUA performance and knowledge leads to appropriate regulations. WUA participation needs to be incorporated into the irrigation management process before water scarcity conditions become acute.

Regulations and official procedures must be perceived as conducive to the organizational management process. Creating and supporting a set of legal codes and regulations with egalitarian objectives of local control and management will increase compliance and long-term cooperation among WUA shareholders and between WUAs and agencies responsible for water delivery to the mesqas.

### 1.1 Participatory Irrigation Management Experiences in Egypt

There are considerable historical records in Egypt describing *early hydraulic civilizations*,[4] which focussed on 1) how to convey water to land for irrigation, 2) how to control water where it threatened to create problems, and 3) how to best conserve it for maximum benefit. While an authoritarian approach was often used, there is nonetheless, sufficient evidence to point toward early forms of community collaboration in construction of levees and canals.

The Egyptian Water Use and Management Project (EWUP), from 1974-84 under the Ministry of Public Works and Water Resources, was instrumental in introducing a contemporary system for participatory irrigation management. EWUP resulted in a series of recommendations that were subsequently implemented and focussed on: 1) formalizing water user involvement in mesqa improvement, O&M, and water management practices, 2) supporting WUAs with a cadre of extension professionals in water management (in the manifestation of the Irrigation Advisory Service [IAS]), and 3) sustained WUA involvement in activities leading to equitable water distribution, and expanding renovations to branch canals.

The Irrigation Improvement Project (IIP), which started in 1989 and continues to the present, formalized the participatory irrigation management process in Egypt. The IIP has established a number of private WUAs as well as the institutional structure for the IAS. Cost recovery for mesqa improvements was implemented under the IIP. Although several assessments of the IIP and its impact have been carried out[5], further studies are needed to determine the impacts on economic return, social stability, and physical operations.

This report categorizes the lessons learned from participatory irrigation management through establishment of WUAs. Egypt's experience is compared with that of several other countries.

[4] Wittfogel, Karl. Oriental Despotism: Early Hydraulic Civilizations. Princeton: Princeton University Press, 1956.
[5] cf. *Egypt's Irrigation Improvement Program: Performance Assessment, and Proposed Strategy*. Cairo: EPIQ/WPRP Team, draft report, 1998.

It is generally agreed that one of the beneficial impacts of participatory irrigation management in Egypt will be reduction in MPPWR's financial and operational responsibilities. This is no less important than creating a much closer working relationship between water suppliers and the water users. It is with this in mind that the GOE is keen to replicate WUAs in non-IIP areas, and to take the organizing and supporting of WUAs out of a "project" modality and have it in the mainstream of MPWWR's work.

There are many social, political and economic forces in Egypt which foster water user group formation at all levels throughout the irrigation system. There are a number of fundamental principles, common to all successful water user programs. These are discussed in this report. The current political and economic environment in Egypt is conducive to the adoption of these principles, and in many instances, they have already been initiated.

A summary of the primary data collected to support this Tranche II benchmark is presented. Focus Group Workshops were undertaken to gather opinions and perspectives from a broad range of farmers (both in IIP and non-IIP areas) and government staff in the IIP and IAS, on the feasibility of establishing WUAs in non-IIP areas, as well as apex organizations[6] above the mesqa level. A total of 162 participated in the seven group workshops. This included large and small farmers, Irrigation Department and MALR engineers, IIP engineers, IAS staff and local political persons and members of the People's Assembly. Participants were asked to respond to a list of questions. The results were used to form the basis for a day-long workshop that included open discussions and information sharing. The major questions focus group participants were asked are:

1. What are the strengths and weaknesses of WUAs in the IIP?
2. What should be the roles and responsibilities of Branch Canal Federations in the IIP?
3. What should be the roles and responsibilities of the MPWWR to provide policy incentives and actions to facilitate Branch Canal Federations in the IIP areas?
4. Is it feasible to establish Branch Canal WUAs in areas with no IIP improvements?
5. What should be the roles and responsibilities of Branch Canal WUAs in non-IIP areas?
6. What should be the responsibility of the MPWWR to provide policy incentives and actions to facilitate Branch Canal Federations in non-IIP areas?
7. Given the need for improved performance of the branch canal, what would a typical farmer on a typical branch tell the Minister (or high level official) of the MPWWR if he (they) were to make a field visit?

The information derived from this qualitative data gathering process was supplemented by approximately fifty interviews and open discussions with WUAs in the IIP.

Results from this exercise indicate an overwhelming positive interest among stakeholders in establishing WUAs in non-IIP areas and apex organizations at the branch canal level; the apex organizations would be instrumental in the effective formation of mesqa-level WUAs in non-IIP areas. Major functions of the apex organizations seen as critical are O&M, system protection, identifying problems and solutions with the irrigation department, improved communications and training.

[6] *Apex* organization is defined here as any water user representational body above the level of mesqa WUA. An apex organization can be a federation of WUAs along a single branch canal or distributary, and can also be a higher-level federation of branch canal/distributary organizations in the form of area or district water boards.

Stakeholders indicated that MPWWR would need to create maintenance centers and hand them over to the branch canal apex organizations. These centers would provide a physical facility to coordinate all extension services, including storage of equipment and maintenance materials. In assessing the efficacy of the IIP approach, stakeholders reported a primary importance of water control capability, as well as savings in time, labor, land and O&M costs. Other incentives for assuring stakeholder confidence and interest are equitable water delivery and regular / uninterrupted continuous flow.

Many cited water savings as a benefit, although this has yet to be measured in quantitative terms. Indicated as prevailing weaknesses in the IIP approach is lack of popular understanding of the working inter-relationships between IIP, IAS, and the WUAs. Secondly, it was felt that the issues and implications related to cost recovery were not adequately understood by WUA shareholders at the time of implementation. It was found that most stakeholders have a general understanding of the fundamentals required in building a network of sustainable WUAs and apex organizations. This is indicated by the view that water users should be responsible for branch canal O&M, employing greater voice with GOE in solving problems and improving communications, monitoring branch canal performance and problems, and implementing future mesqa improvements. Stakeholders concluded that the opportunity to dialogue with senior ministerial officials on a regular basis would provide a significant psychological boost to support the fledgling WUA organization.

### 1.2 Options for Qualitative Expansion of PIM in Egypt

Four options for expanding PIM activities in the future were proposed for consideration. These options are:

- Option 1 - Continue expansion of the present IIP using current strategies for WUA development;
- Option 2 - Establish Water User Federations only on branch canals under the administrative purview of the IIP;
- Option 3 - Establish Branch Canal Water User Organizations in IIP and non-IIP areas;
- Option 4 - Modify and improve the IIP strategy of water user organizing, for WUAs and federations in IIP as well as non-IIP areas.

Option 4 was recommended by the benchmark task group, and subsequently adopted at the EPIQ Steering Committee Round Table meeting, April 29-30 at Ismailiya, attended by officers from USAID, the EPIQ team, farmers, scholars, research scientists as well as Steering Committee members. (Details of this option are highlighted in section 4.3.4).

Following the recommendations adopted by the Steering Committee at the Round Table Workshop, in May 1998 at the opening session of the USAID / MPWWR / GreenCom-sponsored workshop for district engineers, the MPWWR Minister announced that WUAs henceforth were to be formed in non-IIP areas.

### 1.3 Summary Recommendations and Decisions

The report of the Round Table meeting of April 29-30, 1998 held at Ismailiya has been presented

under separate cover. The final recommendations adopted by the attendees and the project Steering Committee were as follows:

1. Generally support the overall expansion of participatory irrigation management in the irrigation system of Egypt.

2. Encourage establishment of Water User Associations in areas not covered previously under any IIP phase, as well as improving the strategies and policies of development in the following fields:

    a) Giving first priority to completion of the remaining IIP mesqas as expeditiously as possible.[7]

    b) Establishment of criteria for selecting major potential irrigation development sites in the future, on the basis of intensive implementation over large areas at the irrigation district level.

    c) Establishment of water user apex organizations on the branch canals allowing for future expansion to the irrigation district level. Alternatively, there should be established a mechanism for operation and maintenance at the branch canal level.

    d) Developing the main and the branch canals in a way that improves the achievement of IIP objectives/targets.

    e) Reviewing the current legal ordinances and institutional regulations (related to water user organizations), and further amend and expand them to strengthen the current and future needs of irrigation improvement.

    f) Studying and analyzing the organizational, legal, and administrative requirements to support the functioning and authority of WUAs and water user apex organizations.

    g) Strengthening the formal institutionalization of the IAS in the ministry in order to enable it to perform its tasks efficiently.

    h) Conducting studies by NWRC to assess and evaluate the irrigation improvement project for recommending alternative adaptive strategies and applications to the most effective results.

In order to achieve these objectives, it was concluded that action must to be taken to implement the following steps:

- Establish by ministerial decree an Action Team, comprised of IIP and other MPWWR officials and other key players experienced in the development of participatory water user organizations.

- Select initial two branch canals which are technically and economically feasible and

[7] However, given the extended time lag in project implementation, this should be undertaken following verification that the mesqa improvements are still technically and economically justified.

acceptable to the water users for forming branch canal user organizations: one in an IIP area having WUAs, and the other in a non-IIP area, having no WUAs). Establish all necessary decrees and recommendations required to fulfill this objective.

- Design & conduct a training course for the IAS staff, district engineers and WUA members to orient them to the exigencies of branch canal water user organizations and other levels of participatory irrigation management.

Conduct a study and prepare plans for establishing privatized water user associations in the El Salaam, North Sinai, and Toshka Projects.

# 1. INTRODUCTION

## 1.4 Overview

The Ministry of Public Works and Water Resources (MPWWR) is the primary government agency in Egypt charged with the management of water resources. Escalating population growth rates, a desire for agricultural expansion, and increasing demands on surface water supply, play significant roles in water delivery capability. both MPWWR and USAID are cognizant of the need to develop policy reform that will effectively address these and other issues that determine the utilization efficiency, productivity, and protection of water resources in Egypt.

During FY 96/97 the MPWWR and USAID developed a "water resources results policy package" that focussed on producing four major results:

1) improved irrigation policy assessment and planning process,
2) improved irrigation system management,
3) improved private sector participation in policy change, and
4) improved capacity to manage the policy process.

The MPWWR and the USAID designed the water resources results package aimed at policy analysis and reforms leading to improved water use efficiency and productivity. Specific objectives were:

1. To increase MPWWR knowledge and capabilities to analyze and formulate strategies, policies and plans related to integrated water supply augmentation, conservation and utilization, and to the protection of the Nile water quality.
2. To improve water allocation and distribution management policies for conservation of water while maintaining farm income.
3. To recover the capital cost of mesqa improvement, and to establish a policy for the recovery of operation and maintenance costs of the main system.
4. To increase users' involvement in system operation and management.
5. To introduce a decentralized planning and decision making process at the irrigation district level.

In early 1997 the water resources results package was amalgamated into the USAID Mission's Agricultural Policy Reform Program (APRP). APRP is a broad-based policy reform program involving five GOE ministries (Ministry of Agriculture and Land Reclamation (MALR), MPWWR, Ministry of Trade and Supply (MOTS), Ministry of Public enterprise (MPE) and Ministry of International Cooperation). APRP has the goal of developing and implementing policy reform recommendations in support of private enterprise in agriculture and agribusiness.

USAID supports the MPWWR in five program activities under APRP. These five activities are: 1) water policy analyses, 2) water policy advisory unit, 3) water education and communication, 4) main systems management, and 5) Nile River monitoring, forecasting and simulation. USAID supports the Ministry's efforts through technical assistance and cash transfers (tranches) based on performance in achieving identified and agreed upon policy reform benchmarks.

Technical assistance for the water policy analyses is provided through a task order (Contract PCE-I-00-96-00002-00, Task Order 807) under the umbrella of the Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ) between USAID and a consortium headed by the International Resources Group (IRG) and Winrock International. Local technical assistance and administrative support is provided through a subcontract with Nile Consultants.

### 1.5 Purpose of the Report and Background

A memorandum of understanding between the Government of the Arab Republic of Egypt (GOE) and USAID listing mutually agreed policy reform benchmarks for the APRP Tranche II period (1 July 1997 – 30 June 1998) was signed on 24 September 1997. Benchmark 6 of Section C of the APRP medium/long term policy goals: Agricultural Land and Water Resource Investments, Utilization and Sustainability states:

> "The GOE will develop a policy to allow the formation of water user associations in areas that have not participated in the Irrigation Improvement Program (IIP), and begin to promote such associations."

In support of this policy benchmark activity, a task to study the feasibility and popular interest in formation of water user organizations at the mesqa level was included in the EPIQ Water Policy Reform Program project implementation plan.

A methodology was developed allowing for review of literature, dialogue with key players in the participatory irrigation field, and primary data collection from water users and government staff, within a truncated time frame. Primary data were collected through a series of one-day focus group workshops with 162 farmers, MPWWR officers, and local leaders at seven sites in the Nile Valley and delta . Work on this benchmark policy reform started in February 1998 and completed June 30, 1998).

### 1.6 Organization of this Report

Following the Introduction (Chapter 1) of this report, there is a general overview of participatory irrigation management (Chapter 2) referring to experiences in Egypt and other countries. A summary of the major findings of the Focus Group Workshops provides the basis for Chapter 3. Alternative options considered for establishing WUAs in non-IIP areas and developing water user apex organizations above the mesqa level are presented in Chapter 4. Recommendations are presented in Chapter 5. The results of the Steering Committee Roundtable Workshop (April 1998) are listed in Chapter 6, including recommendations to be made to the MPWWR Minister. Chapter 7 highlights three actions taken by MPWWR to promote expansion of WUAs to non-IIP areas (a requirement of the benchmark). An announcement made in early May 1998 of a ministerial decision to replicate formation of WUAs to non-IIP comprises Chapter 8. Literature referenced in this report can be found in Chapter 9.

# 2 OVERVIEW OF USER INVOLVEMENT IN IRRIGATION MANAGEMENT

## 2.1 Introduction

### 2.1.1 Water User Association Frame of Reference

In Egypt farmers have always been responsible for maintenance at the mesqa-level. Traditionally, this usually entails taking action when problems arise, and rarely results in a formal process where maintenance can be organized in a forward planning process. Under the IIP (Irrigation Improvement Program), formally registered Water User Associations (WUAs) in Egypt are expected to fulfil several major roles. Foremost among these is to maintain mesqas in running order. This includes preventive maintenance conflict resolution issues. WUAs are responsible for managing equitable water delivery from the head to tail reaches, a control mechanism for checking usage abuses, and regular repair of channels and structures. Because farmers have a vested interest in the facilities and have to pay for repairs, they are less likely to allow damage to structures.

### 2.1.2 Agricultural Productivity Augmentation Accruing from Farmer Participation

Changes in agricultural production patterns can be attributed to a number of physical, economic and social variables. For the purpose of this paper, discussion is limited to benefits ensuing as a result of participatory irrigation. It is generally assumed that farmer participation in irrigation management in Egypt results in increased agricultural productivity (Devres 1994). Further studies are needed to assess changes in agricultural productivity in areas where the IIP has been implemented. When comparing the performance before and after WUA formation, assessment needs to be made if there has been any statistically significant increase in yields, taking into account the measure of impact of other important variables related to water supply, the physical system, and improved technology packages. Most studies acknowledge that farmers are willing to invest in their irrigation systems when they perceive an assurance of predictable and equitable water delivery.

### 2.1.3 Changes in Cropping Intensity

As yet, there are insufficient reliable data to draw conclusions regarding changes in cropping intensity in IIP areas. There are, however, some indications that cropping intensities are greater in traditional farmer-managed systems in selected islands along the River Nile in Egypt (in non-IIP areas). This is reported as being 300 to 350 percent, compared to 200 percent in centrally-managed systems. The average gross returns per *feddan* (in Egyptian pounds) in the former are about three times higher than in the latter. However, it is not possible to determine how much of this change is attributable to the performance and management capability of farmers' organizations, and how much to changes in physical systems or water supply under improvement schemes.

### 2.1.4 Financial Impact Performance Indicators

Very often the most tangible and well-documented gain from farmers' involvement in irrigation management is evidenced by a reduction in government costs. These cost savings come from reduced administrative and operations costs as the number of field staff decreases, as project design capability improves, as collection rates increase, and as destruction of physical structures decreases. Numerous country experiences lend support to this claim.[8] In Egypt, however, the level of government cost reduction in system management has not been adequately researched and reported.

### 2.1.5 Farmer View of Costs in the PIM Process

During the seven focus group workshops farmers report cost decreases in O & M (time, labour, pumping and maintenance) after irrigation system improvement. As no transfer of responsibility has taken place and efficiency gains have yet to be adequately reported, it is difficult at this

[8] For example, Bagadion and Korten (1991) estimated an annual savings to the Philippines government amounting to US$12 per hectare from the contributions of the irrigation associations in terms of man-hours spent on management, maintenance, repair, and improvement activities; water distribution and fee collection; and direct cash outlays for canal repairs and supplies and materials. In Nepal, farmers' total contributions represented 15 percent savings in capital costs (Reidinger and Gautam 1992).

N.B.: Explication of additional country-specific experiences, e.g. Indonesia, India, Pakistan, Sri Lanka, Turkey, etc. can be found in the paper "Expanding Participatory Irrigation Management (PIM) for Improved System Performance in Egypt", Lowdermilk and Barakat, 1998.

juncture to render cost-saving estimates with any degree of precision. This situation could be addressed through conduct of diagnostic analyses on improved mesqas using participatory rural appraisal techniques.[9]

During the seven workshops farmers representing IIP WUAs indicated that only considering cash contributions does not reflect the full responsibility borne by farmers because labor and in-kind contributions (e.g. farmers' non-quantifiable transactions costs of attending meetings, and settling disputes), need also to be factored into the equation. Further study is needed in order to arrive at a realistic estimation of costs, including those assumed by the GOE and those by farmers, as a result of farmer participation. These costs should then be compared to increases in service improvements and resulting income increases for farmers to assess the long-run cost implications of mesqa and branch canal O&M under WUA management. It is suggested that this level of fact-finding and analysis be undertaken with WUAs using a case selective diagnostic analysis method which would mitigate risks in undertaking a broadly structured socio-economic survey with a largely uncontrolled informant base.

### 2.1.6 Environmental Impact Indicators of the Participatory Approach

In IIP WUAs where a participatory approach has been used physical facilities and structures are generally well-maintained and water is efficiently distributed among users. There is significant potential, untapped for the most part, for reducing adverse environmental impacts through WUA involvement. As yet, little documentation is available in Egypt on the impact of WUA management on waterlogging and salinization rates, but there are indications that in IIP areas, replacing pumping by individual farmers from channels and drains with joint pumping by *mesqa-level* WUAs reduces the water-logging propensity. Groundwater tables are more difficult for WUAs to control, because monitoring groundwater level and extraction by individuals is more difficult than monitoring visible surface water supplies and use.

[9] Diagnostic Analysis training for IIP and IAS staff is scheduled for August/September 1998.

## 2.2 Problems with Identifying Performance Changes Attributable to WUAs

### 2.2.1 Availability of Empirical Evidence

Although the evidence on improvements in irrigation performance associated with WUAs in Egypt is largely anecdotal, the fragmentary nature and methodological problems with the available studies make it premature to draw sweeping conclusions. Few of the empirical studies provide substantive indicators of performance changes, let alone provide comparable indicators across studies. There is, moreover, a selection bias in the studies, with information on performance changes more readily available from successful WUAs than from those WUAs that have become defunct. Identifying and isolating the benefits accruing exclusively to participation is even more problematic, because the causal linkage between WUA activity and actual gains derived from it is not distinctly separable from other factors. These factors include better irrigation delivery services on the part of responsible irrigation agencies, farm management, a sound policy environment, and more favorable market conditions.

Because management transfers are often accompanied by physical changes to the system, separating the impact of WUAs from the effects of the system rehabilitation is particularly difficult on water delivery performance and agricultural output. The absence of reliable measures of WUA performance in Egypt makes it especially complex to identify its impact. However, to the extent that WUAs contribute to improvements in management or to the sustainability of physical system improvements, isolating the effect of WUAs from overall system changes is probably not necessary in most cases. What is needed is careful and systematic evaluation of the contribution of WUAs in the overall management process, ideally using a combination of cross-sectional comparisons between systems with and without strong WUAs and a time series of the same systems before and after WUA formation.

Despite the difficulties in evaluating the impact of WUAs, continuing to gather empirical information on how these organizational developments have contributed to improving irrigation system performance remains critical.

### 2.2.2 Perceived Positive and Negative Implications of WUAs

WUA participation can make either a positive or negative contribution to management costs depending on the allocation of management responsibilities. WUA participation contributes

positively to the cost-effectiveness of the management processes when it lowers information transfer costs through the provision of supplemental non-technical knowledge. It may also lower coordination costs when the number of shareholders is small or, if large, well represented. WUA participation lowers system-monitoring costs when WUA participation increases management legitimacy and leads to higher levels of regulatory compliance. It also contributes to lower enforcement costs when WUA knowledge leads to regulations that are appropriate to the context.

In order to sustain this positive input in the Nile valley and Nile delta, WUA participation should be incorporated into the irrigation system management process before water supply conditions decline to the point of perceived scarcity. Fortunately for the PIM process Egypt, in most cases water supply has not reached a level of relative scarcity.

WUA participation, in some cases, may work against cost-effective management where the shareholders are too socially diverse (i.e. exogamous) or underrepresented, or where the water quality is compromised to the point that short-term incentives to abuse the system conspire to diminish the longer-term potential benefits of compliance. The multi-country body of WUA literature indicates that a cogent lesson learned: *WUA participation in the system management process increases in difficulty as water delivery becomes constrained.* In a situation where organizational management decisions consistently result in a net loss to the shareholders, participatory collaboration becomes more of a burden than a boon to sustain, and will inevitably lead to processes which disintegrate into social conflict, confusion and disorder.

### 2.2.3 Regulatory Conditions

To the extent that WUA involvement promotes positive regulatory changes, it further can reduce transaction costs. Laws and regulations that reflect all shareholder interests and are perceived by the user to be legitimate have an enhanced probability of collective acceptance. Regulations perceived as fair also are more apt to affect responses from the communities in ways that are compatible with long-term sustainability. When WUA involvement results in regulations that are equitable in their impact, compliance increases and costs of monitoring and enforcement decrease. The process of creating and supporting a system with egalitarian objectives of local control requires a carefully crafted set of regulations and enforceable guidelines, which users can understand and regard as beneficial and not constraining.

While it is recognized that there exist major gaps in substantiating data, there are sufficient perceived efficiency gains from WUA participation in Egypt to warrant its application in irrigation management outside the IIP program. A further reason for its consideration is that, regardless of the management structure adopted, farmers on a mesqa are already involved in management in some way. The management process can be structured to allow farmers to be proactive or to be reactive. If farmers are not involved at the design and implementation stages, they are likely to be involved at later stages as evidenced through various acts of regulatory non-compliance. The relevant question is which process will minimize the transaction costs of management maintaining a sustainable irrigation network?

## 2.3 Background of Participatory Irrigation Management (PIM) in Egypt

In countries depending on surface water resources for agriculture, farmers have always had to carefully husband and conserve this valuable resource. The nature of water provided three great challenges to early hydraulic civilizations such as Egypt: 1) how to convey water to land for irrigation of crops , 2) how to control it where it threatens to damage and destroy and 3) how to conserve it for all the people. The Nile River has been measured probably more than any river. During the twelfth dynasty water administration was centralized with many codes and laws about using and conserving water. Villagers in groups of 1000, 100, 10 and 5 men were organized under a farm leader to build levees and canals. Although this was to some extent a "participate or else!" approach, it did form the nucleus of a continuing legacy of community collaboration in rural resource management which sustains as a cohesive element in contemporary agrarian society.[10]

### 2.3.1 PIM and the Egyptian Water Use Management Project (EWUP)

Among the earliest research efforts in Egypt demonstrating the efficacious impacts of water management were the EWUP (1977-1984), an interdisciplinary project implemented by the MPWWR. The recommendations[11] of that project related to farmer participation or PIM were:

- farmers should be involved in improvements to the water delivery system,

[10] cf. Wittfogel, ibid.
[11] MPWWR, Egyptian Water Use and Management Project, Findings of the Egypt Water Use and Management Project, Improving Egypt's Irrigation Systems in the Old Lands, MPWWR, March 1984, pages 55-58.

- farmers must play a role in ensuring more efficient operations, improved maintenance and protection of physical works,
- farmers should become involved in management of water,
- need for a special well-trained cadre of professionals (IAS) for new farmer responsibilities and provide them services related to water delivery, water use and organization of farmers, and
- continued farmer involvement is essential for improved operations, water scheduling, mesqa improvements and renovations of branch canals.

In subsequent efforts, most notably the IIP, many of these recommendations have been implemented.

### 2.3.2 PIM and the Irrigation Improvement Project

The Irrigation Improvement Project has evolved in organizational status to a "sector" within MPWWR with a number of projects for irrigation improvement assisted by several donors and international lenders. Participatory irrigation management began in a formal way under the IIP, and while many lessons have been learned, insufficient monitoring and evaluation has been carried out documenting the impact.

The IIP has established a number of private WUAs as well as set up an institutional structure for the *Irrigation Advisory Service.* Cost recovery for mesqa improvements, a vital element in the PIM process, has been implemented; to further its impact the MPWWR has established a special fund for payments from cost recovery, and funds from donors to finance additional irrigation improvement projects. Tables 2-1 and 2-2 indicate physical progress made to date.

## 2.4 Synthesis of Lessons Learned for PIM Policy Requisites

This section is an attempt to identify those lessons that are important for developing appropriate policies for expanding WUAs to a non-IIP areas and for forming water user apex organizations (e.g. branch canal organizations in both IIP and non-IIP areas). These are drawn from the above cases in Egypt and other countries. (See Table 2-1).

**Table 2-1 Basic Lessons Learned, Policy Comments and Examples from PIM Activities**

| Basic Lessons | Comments on Policy | Examples |
|---|---|---|
| Strong government support | Seen in Water laws and policies to encourage them. | Western countries, Egypt, Nepal, Sri Lanka, Philippines, Mexico, Indonesia, Pakistan and other PIM countries |
| High level personal support by Ministers | Ministers make this a top priority | Western countries, Egypt, Sri Lanka, Philippines, Mexico and Sri Lanka |
| Water Users Associations which are private and owned, controlled and managed by water users | Clearly stated in policy which clearly delineate the roles and responsibilities of water users as well as those of government. | Western countries, Egypt, Sri Lanka, Mexico, Nepal, Philippines |
| Clearly recognized and sustainable water rights and water services (e.g. IAS) | Clear rights to water and advisory service which can provide water users services related to organization functions, water distribution and water use | Western countries, Egypt, Korea, Japan and Taiwan |
| **Basic Lessons** | **Comments on Policy** | **Examples** |
| Arrangements for viable and timely conflict resolution | WUA legislation spells this out | Western countries, Mexico, Spain etc. |
| WUA turnover should not be a cover to simply shift the costs of O&M to users without having decision making rights | Decision making powers must exist for WUAs | Western countries, Spain |

Source: Vermillion, Douglas L. Impacts of Irrigation Management Transfer: A Review of the Evidence, Research Report Number 11, International Irrigation Management Institute, 1997

Expanding participatory irrigation management through branch canal, district organizations or water boards in areas with strong improvement programs is not a substitute for government

agency participation. It should not be assumed that farmers will willingly organize and operate or maintain systems that are run-down and cannot provide a predictable and stable water supply. The GOE should have better reasons for instituting a PIM process than simply reducing in costs of O & M or cost sharing in irrigation improvements. Water user development programs should be viewed as a means to create a much closer working relationship between water suppliers and the primary water users. WUAs should not be viewed as taking over the roles and responsibilities of the district engineers and others, but as a means of complementing and supplementing the work of the irrigation department. Management transfer programs in countries as diverse as Mexico, Colombia, Senegal, the United States and Indonesia have demonstrated positive results in involving farmers and reducing government expenditures.[12] There are many social, political and economic forces which foster water user group development. Some of these forces are:

- economic liberalization which has spread around the world with amazing speed,
- programs of deregulation, decentralization and democratic approaches to rural development,
- realization that improved irrigation performance requires active participation of water users,
- rising costs of O&M, and improvement programs along with declining staff levels,
- new realization of the capabilities of water users to manage and to mobilize resources,
- increasing competition for available water supplies from many sources,
- institutional and management weaknesses of public irrigation agencies, and
- frustration and dissatisfaction of donor organizations with the outcome of some types irrigation investments and reluctance to make certain irrigation loans.

A review of the literature suggests that there are certain principles, which tend to exist in successful water user associations in many countries. These are:

[12] Sevendsen, Mark and Meinzen-Dick, Ruth, Irrigation Management Institutions in Transition: a Look Back, a Look Forward, in Irrigation and Drainage Systems, Kluwer Academic Publishers, Printed in the Netherlands, 1997, pages 139-156.

- clear aim and purpose in a charter backed by appropriate legislation and policies,
- clear incentives for water users who devise their own rules and have clear sanctions for those who violate these rules,
- improved services to water users if they are to be expected to mobilization financial and other resources for O & M and irrigation improvements,
- clear roles and responsibilities of water suppliers as well as water users,
- accountability and transparency of irrigation agencies and WUA members,
- time and flexibility so that water users and suppliers can learn to work together, and
- careful and continuous monitoring and evaluation (process documentation) to assess what is happening to the water, to WUAs and agriculture productivity.

# 3 SUMMARY OF THE MAJOR FINDINGS OF THE FOCUS GROUP WORKSHOPS

## 3.1 Purpose of Focus Group Workshops

The purpose of the Focus Group Workshops was to glean opinions and perspectives from a broad range of stakeholders regarding the feasibility of establishing WUAs in non-IIP areas, as well as branch canal water user apex organizations. In consultation with MPWWR, the EPIQ team and USAID, a qualitative methodology was developed using a succinct questionnaire medium as a catalyst for brainstorming in a forum of candor and frank exchange of views. A total of 162 stakeholders participated in the focus group workshops, including large and small farmers, Irrigation Department and MALR engineers, as well as IIP and IAS engineers and a number of local political leaders and members of the People's Assembly. Following completion of the questionnaire, there ensued a full day's discussion and information sharing. The information derived from this qualitative data gathering process was supplemented by approximately fifty interviews and open discussions with WUAs in IIP areas.

## 3.2 Focus Group Issues of Discussion

The following questions were asked of the participants at the outset of each focus group workshop:

1. What are the strengths and weaknesses of WUAs in the IIP?
2. What should be the roles and responsibilities of Branch Canal Federations in the IIP?
3. What should be the roles and responsibilities of the MPWWR to provide policy incentives and actions to facilitate Branch Canal Federations in the IIP areas?
4. Is it feasible to establish Branch Canal WUAs in areas with no IIP improvements?
5. What should be the roles and responsibilities of Branch Canal WUAs in non-IIP areas?
6. What should be the responsibility of the MPWWR to provide policy incentives and actions to facilitate Branch Canal Federations in non-IIP areas?
7. Given the need for improved performance of the branch canal, what would a typical farmer on a typical branch tell the Minister (or high level official) of the MPWWR if he (they) were to make a field visit?

### 3.2.1 Consolidated Responses to WUAs in Non-IIP Areas

**Table 3-1 Stakeholders' Views Reporting WUAs as Feasible in Non-IIP Areas**

| **Workshops** | IIP Farmers (22) | Non-IIP Farmers (33) | IIP Engineers (59) | Non-IIP Eng. (26 | Others** (22) | Totals (162 |
|---|---|---|---|---|---|---|
| Tanta (n=26) | 100% | 100% | 100% | 96.1% | 100% | 99.3% |
| Damanhur (n=26) | 100% | 100% | 98.3 | 100% | 100% | 1% |
| Zagazig (n=24) | 100% | 100% | 100% | 85% | 100% | 97.5% |
| El Minya (n=26) | 100% | 100% | 100% | 96.1% | 100% | 99.4.0% |
| Mansoura (n=24) | 100% | 100% | 98.3% | 96.1% | 100% | 98.8% |
| Esna (n=16) | 100% | 100% | 100% | 100% | 100% | 100.0 |
| Beni Suef (n=20) | 100% | 100% | 93.2% | 100% | 100% | 97.5% |
| **TOTAL (N=162)** | **100%** | **100%** | **94.9** | **73.0%** | **100%** | **94.4%** |

Given the overall expression of support for the notion of WUAs in non-IIP areas, there should be a definition at this point of what is meant by a "non-IIP area" and a "Branch Canal organization where mesqas have not been improved". A non-IIP area is one where the package of mesqa improvements such as those under the IIP has not been implemented. This does not mean that improvements to the main and branch canals have not been undertaken in such areas. Assuming that *continuous flow* is implemented as a basic feature would mean that the upstream and downstream control structures would have to be improved along with the closing of mesqa tail escapes and installation of gates at mesqa intake points. This approach would be in contrast to the present IIP approach of improving mesqas and organizing WUAs as a precursor to developments at the branch canal level. (This strategy is presented in this report to be implemented on at least two Branch Canals [one in IIP and one in non-IIP areas] over the period covering the implementation of Tranche III. This period coincides with the GOE fiscal year, i.e.

July 1, 1998 to June 30, 1999.)

### 3.2.2 Are Branch Canal WUA Organizations in Non-IIP Areas Feasible?

The results of the focus group workshops with stakeholders show that there is overwhelming support among stakeholders for expanding development of WUAs to non-IIP areas. This is shown by the following percentages of stakeholders who reported.

**Stakeholders Reporting that WUA organizations are feasible in non-IIP areas**

| *Type Stake Holders* | *Number Reporting* | *Percentage Reporting Feasible* |
|---|---|---|
| IIP WUA Farmers | 22 | 100.0 % |
| Non-IIP Farmers | 33 | 100.0 % |
| IIP Engineers | 59 | 94.9 % |
| Non-IIP Engineers (ID) | 26 | 69.2 % |
| Others[13] | 22 | 100.0 % |
| **Total:** | **162** | **92.0 %** |

Based on this information and interviews with MPWWR and IIP staff, it is concluded that WUA organizations in non-IIP areas are perceived by stakeholders as an acceptable and feasible means of community management of irrigation resources at the mesqa level.

### 3.2.3 What Should be the Roles and Responsibilities of Branch Canal WUA Organizations in Non-IIP Areas?

**Table 3-2 Stakeholders Views of the Roles and Responsibilities of Branch Canal WUA Organizations in Non-IIP Areas (N = 162)**

| Responses | % Reporting | Rank |
|---|---|---|
| Joint problem identification and search for solutions with the Irrigation Department | 66.0 | I |
| System protection gates, structures, roads, canal banks etc. | 42.0 | II |

[13] Refers to agricultural officials, extension workers and 7 Peoples Assembly Members plus two local political officials. It is useful to know that some of the several of the parliamentarians are members of the Agricultural Committee and one is on the Finance Committee. The former committee is where legislation must be introduced and sent to the Peoples Assembly for political approval before it goes to the Presidents' special committee that approves all new legislation.

| **Table 3-2 Stakeholders Views of the Roles and Responsibilities of Branch Canal WUA Organizations in Non-IIP Areas (N = 162)** | | |
|---|---|---|
| Communication with the Irrigation Department and other service organizations and ministries | 35.8 | III |
| Operation and Maintenance of branch canals | 34.6 | IV |
| Maintenance and Training Centers for Federation Council and mesqa farmers | 21.0 | V |
| Reporting violations of irrigation codes and environmental problems to the Irrigation Department and others | 19.8 | VI |
| Monitor canals and mesqas , participate in improvements and water management | 8.0 | VII |

**includes 25 non-IIP participants from Mansoura where there is no active IIP at this time; only seven of the eight responsibilities are provided above.

Table 3-2 illustrates that stakeholders have a frame of reference for prioritizing what functions a branch canal organization can provide for improving irrigation management. These are operation and maintenance, protection of the system, identifying problems and solutions with the irrigation department, improved communications and training.

It should be added that the community operation and maintenance of the branch canals would save the MPWWR increasingly scarce resources in terms of staff on the government payroll as well as material costs. Savings are estimated to be in the range of 33.90 LE per feddan per year[14.] If capital costs were included in this calculation, including physical structures, bridges and other civil work, this savings rate would rise to 46.30 LE per feddan. Further, the inclusion of tile drainage to the equation would result in savings of approximately 64.00 LE per feddan. While this may appear in some respects to be a low figure, it must be remembered that the present quality of O & M has major shortcomings. To extrapolate further and to illustrate a possible case example, if a given branch canal has 12 mesqas, and each mesqa averages about 200 feddans, there would be savings of approximately 170,000 LE (or about $50,000) to the government per annum.[15] These estimates should be considered in comparison with O & M

[14] All LE amounts are estimated based on 1991 comparative rates.
[15] See reference, Table D2.1 taken from the ISPAN Cost Recovery Study, 1992

charges reported in several countries, as illustrated in the following:

USD Equivalents of O & M Estimated Costs in Other Countries Compared with Egypt[16]

| | |
|---|---|
| Egypt | 19 per feddan (1991 prices) |
| Indonesia | 6 per feddan (Source: Sam Johnson Jr. 1995) |
| New Zealand | 13 per feddan (Johnson, 1995) |
| Columbia | 22 per feddan (Johnson, 1995) |
| Nigeria | 26 per feddan (Johnson, 1995) |

### 3.2.4 What are Stakeholders Views of Roles and Responsibilities of the MPWWR in Supporting Branch Canal WUA Organizations?

**Table 3-3 Stakeholders Views of Roles and Responsibilities of the MPWWR in Supporting Branch Canal WUA Organizations (N = 162)**

| Responses | % Reporting | |
|---|---|---|
| Create maintenance centers combined with a place for WUA meetings, training and coordination of services of other ministries, i.e. MALR, Health and Environment etc. | 58. | I |
| Provide stable and equitable water supply with dependable rotations and continuous flow where possible | 40.1 | II |
| Provide legal base for WUA branch canal organization and powers to work with the irrigation department in O & M, monitoring the branch and assisting with cost recovery | 40.1 | II |
| Strong communication support for WUA organizations to create awareness and understanding | 29.6 | III |
| Provide direct communications to the MPWWR | 19.8 | IV |
| Decentralize and give more powers to District Engineers and provide them and IAS staff more incentives for working long hours overtime | 12.3 | V |

Includes 25 participants from Mansoura, a non-IIP area; only six of eight responses are recorded

[16] See: Johnson, Sam Jr. Selected Experiences with Irrigation Management Transfer: Economic Implications in Water Resources Development. Volume 11, No. 1, pp. 61 to 72)

in Table 3-3.

The responses indicated in Table 3-3 illustrate an expectation from stakeholders that in order carry out efficient O & M on the branch canals, they would need to have a maintenance center facility at their disposal. It was suggested that a building be provided similar to those the IIP has built to serve as a WUA maintenance center which can be used for organization meetings, storage of equipment and spare parts, and farmers' training. It would also function to coordinate services from MALR, e.g. extension and pest management, as well as services and inputs from other sectors, such as community health and environment. The current IIP centers are popular with farmers and field staff alike, and serve as a place to store equipment such as flumes, motorcycles as well as providing a place for field staff to over night. During the discussions the stakeholders emphasized the need of a stable water supply with continuous flow as a primary motivating factor to ensure their collective sustained participation. If continuous flow cannot be implemented, a predictable and fair rotational water supply, the design and planning of which involved the WUAs, is a preferred secondary option. For this reason, it is strongly recommended that this incentive be made available prior to the onset of mesqa improvements. Gating the mesqa intakes and closing the mesqa tail escapes before implementing down stream control facilities in the non-IIP areas would further facilitate this process.

Stakeholders also acknowledged the prerequisite of a strong water user empowerment legal basis if they are to be expected to operate, manage and maintain the branch canals. They also want better communication support allowing greater interaction between the water users and the field staff. A number of participants indicated they would like to have the MPWWR decentralize authority and decision-making (and not just responsibilities) to the district engineers.

### 3.2.5 What Can be Learned from the Experience of the IIP in Establishing and Strengthening WUAs?

Some insights as stated by stakeholders are indicated (see Tables 3-4 and 3-5 below), and will be useful in setting up performance parameters toward building WUAs in non-IIP areas.

| Table 3-4 Stakeholders' Reports of IIP WUA Strengths (N = 141)** | | |
|---|---|---|
| **Reports** | **% Reporting** | **Rank** |
| Improved trust, communication and cooperation among water users with each other and the Irrigation Department | 71.6% | I |
| Uniform allocation and distribution of water due to continuous flow and its reliability | 59.6 | II |
| Savings in time, labor, land and O & M costs | 50.8 | III |
| Improved problem solving among WUA members and Irrigation Department | 33.8 | IV |
| Participation in decision making with MPWWR and especially the Irrigation Department and among members builds leadership and ownership sense in the WUA | 33.2 | V |
| Water savings and an understanding of the value of water | 31.6 | VI |
| Better scheduling and timing of irrigations, and applications of water | 23.6 | VII |
| Increased yields and improved quality of crops | 21.3 | VIII |

**Those from the Non-IIP area of Mansoura are not included in Tables 4 and 5; note that only those responses with a cutoff of twenty percent are included.

### 3.2.6 WUA Weaknesses in IIP Areas

| Table 3-5 Stakeholders in IIP Areas Views of WUA Weaknesses (N = 141) | | |
|---|---|---|
| **Responses** | **% Reporting** | **Rank** |
| | | |

| Table 3-5 Stakeholders in IIP Areas Views of WUA Weaknesses (N = 141) | | |
|---|---|---|
| Lack of awareness, understanding and also current lack of support from Irrigation Department | 52.2 | I |
| Weak leadership and greedy members | 32.3 | II |
| No maintenance center or place to store/distribute spare parts and other equipment needed for repairs etc. | 29.4 | III |
| Old family feuds, conflicts and contractors who sometimes abuse farmers and/or enter into local political disputes | 27.9 | IV |
| Poor mesqa design and poor quality of construction | 26.5 | V |
| Cost recovery not clear, financial complications, i.e., lack of savings and no bank accounts | 18.4 | VI |
| Scheduling problems and lack of continuous flow | 17.6 | VII |

**The members of the non-IIP area of Monsoura are not included in the above; denotes also that only seven of the major weaknesses are shown above.

These responses would appear to coincide with what can be seen in the field, i.e. where there are strong WUAs as well as weak ones side by side. Note is made of the perceived and declared importance of the presence or absence of water control in the responses in Tables 3-4 and 3-5. The value of savings in time, labor, land and costs of O & M evidently ranks high with stakeholders. It is significant that approximately one-third of the respondents mention the importance of *water savings*, even though levels of water savings have yet to be adequately documented. (In addition to poor staffing levels and minimal budget, incapability to undertake effective and meaningful monitoring and evaluation is seen as one of the major weaknesses in IAS performance).

Further cited as a prevailing weakness of current WUAs in the IIP areas is a perceived general lack of popular awareness and understanding with regard to institutional functions and relationships between IIP, IAS and the WUAs. This would tend to highlight the need to include more and better communication skills and demonstration training in the formal IIP and IAS work structure. Leadership skill development training is weak and presently the IIP has no funds for WUA council member or water user training as it once had during earlier years of project life.

Further, cost recovery was not introduced by the IIP until half way through its program, and the implications and prerequisites for this activity were never adequately communicated or understood by either WUA shareholders or IIP/IAS staff.[17]

### 3.2.7 What is Required Both from Water Users and Water Suppliers (MPWWR) in Terms of Roles and Responsibilities for Building Sustainable Branch Canal Organizations in the IIP Areas?

Answers to this question provide insight with regard to the nature and content of non-IIP WUA organizational prerequisites. These may include establishment of branch canals, district organizations or canal water boards. To form apex organizations effectively, the lower base of organizations is essential. Tables 3-6 and 3-7 below provide some of these important insights as expressed by the focus group participants.

**Table 3-6 Stakeholders Views of the Roles and Responsibilities of Branch Canal WUA Organizations in the IIP Areas (N =141)****

| Responses | % Reporting | Rank |
|---|---|---|
| Operation and Maintenance of the branch canal | 62.5 | I |
| Good communications and coordination with the Irrigation Department | 45.6 | II |
| Monitor and strengthen mesqa WUAs | 27.7 | III |
| Protection of branch canal system, i.e. gates, roads, canal banks, structures etc. | 21.3 | IV |
| Monitoring canal and mesqa violations and reporting those to the Irrigation Department | 21.3 | IV |
| Agricultural Extension | 19.1 | V |
| | | |

[17] In 1997 the High Court ruled that water users could not be charged for mesqa improvements unless the improvements were initiated after the date of the new law. So many mesqas were only partially completed; therefore, they fell within the time requiring no payments. This by no means presupposes that water users are against cost recovery, because in tile drain areas farmers are now paying for drainage improvements through a cost sharing mechanism.

| Table 3-6 Stakeholders Views of the Roles and Responsibilities of Branch Canal WUA Organizations in the IIP Areas (N =141)** | | |
|---|---|---|
| Helping plan, design and implement programs such as the IIP mesqa improvements where desired | 18.4 | VI |

**Note that only seven of the major responses are reported above; also the 21 stakeholders from the non-IIP area are not included in the above responses.

It would seem to be clear from these responses that reporting stakeholders understand many basic fundamentals in the process of building a network of sustainable WUAs and apex organizations. For example, it was reported that in their view O & M of the branch canal should be the responsibility of the organization of users and *not* the government line department. They recognize that in order to assume this role responsibly and effectively they must have a greater voice and a stronger channel of communication, supported by empowerment ordinances, with the Irrigation Department in solving problems and improving communications with the department staff. The farmers note the importance of monitoring all activities, general physical protection of the system, and capably reporting mesqa and canal violations for appropriate remedial action. The stakeholders express the need to have a concerted role in planning, designing and implementing any future mesqa improvements.

### 3.2.8 What Should Be the Responsibility of MPWWR to Provide Policy Incentives and Actions to Facilitate Branch Canal Organizations in Non-IIP Areas?

| Table 3-7 Stakeholders Views of MPWWR Roles and Responsibilities Branch Canal Organizations in Non-IIP Areas (N = 141)** | | |
|---|---|---|
| Responses | % Reporting | Rank |
| Centers for maintenance and extension-type meetings, council meetings and training of members and leaders | 31.6 | I |
| Equitable water supply with regular or uninterrupted continuous flow | 28.7 | II |
| Provision of funds for training organization members, and IAS and District Engineers | 25.0 | III |
| Direct communication and coordination of branch canal | 23.5 | 3.3 IV |

| **Table 3-7 Stakeholders Views of MPWWR Roles and Responsibilities Branch Canal Organizations in Non-IIP Areas (N = 141)**** | | |
|---|---|---|
| organizations with the MPWWR Irrigation Department | | |
| Increased media support from MPWWR | 28.7 | II* |
| Visits of MPWWR officials to encourage and support water user organizations and give them status and prestige | 21.3 | V |
| Need to amend WUA legislation to include water user apex organizations and provide appropriate policy support to them | 18.4 | VI |
| Closer monitoring and maintenance of main canals | 11.8 | VII |
| Support of the IAS and monitor and evaluate WUAs on a regular basis | 10.3 | VIII |

There are two second ranked responses; note that only 9 of 17 reported responsibilities of the MPWWR are provided in Table 3-7 above. The Mansoura stakeholders are left out of the above responses.

These responses would appear to be realistic in their scope and breadth. If the WUA branch canal organization is to perform the O & M of the branch canal, some type of maintenance / meeting / equipment storage center is needed. In addition, stakeholders expressed their view that regular continuous flow is essential. It frequently has been reported that a major weakness in some IIP areas is, that even after a number of years of programming, continuous flow does not work well or reliably. This can be traced back to a political difficulty of providing only one branch canal with continuous flow while others remained on the traditional rotation system. In some places pump stations had not been completed such as in the Tanta area of Bahr e Saidi Canal. And in the Tanta IIP directorate, there are improved and unimproved mesqas on the same canal. This has caused complications in the fair distribution of water, where some IIP farmers use sumps and tanks for underground systems. At the same time, and in the same area, a number of farmers are pumping directly from Qahwagi canal, thus causing an equilibrium imbalance in water supply delivery.

### 3.2.9 What Would a Typical Farmer on a Branch Canal Tell a Minister or Senior MPWWR Official if He or They were to Visit the Site?

The responses to the final question (Table 3-8) reveal an interesting insight into the level and dynamics of communication between farmers, line department field staff and central authorities. As noted in Table 3-7 above, stakeholders reported that they expected MPWWR officials to visit their organizations on a regular basis in order to be aware of problems first hand as they develop. In addition, this would tend to lend status and prestige and encouragement to these fledging social institutions, which are mandated to carry out irrigation and canal management responsibilities. A consistent major complaint proffered by farmers since the beginning of the IIP is that senior MPWWR officials rarely venture to the field, and almost never called for meetings with WUAs when they did go the field. Whether this is true in absolute terms is less important than the perception among farmers that it is the prevailing case. The responses shown in Table 3-8 below indicate on what subjects and concerns the stakeholders would likely address the Minister if he or his officers were to pay a visit to a branch canal organization.

**3-8 Stakeholders' Responses to a Visit by the MPWWR Minister and/or His Officers**

| Responses | **% Reporting** | **Rank** |
|---|---|---|
| Need stable and predictable water supplies and in IIP areas need regular continuous flow | 55.5 | I |
| Promote branch canal WUAs , the O & M of the canals and mesqas and monitoring of system | 41.3 | II |
| More official field visits and transparency of irrigation staff in dealing with farmers | 17.9 | III |
| Promote more cooperation with other gov't agencies for services such as MALR, Extension, Environment, Health, Drainage etc. | 16.7 | IV |
| Facilities and resources for training WUA leaders, IAS staff and district engineer at a local center. | 16.7 | V |
| Apply quick sanctions when laws are broken and to contractors who default on their agreements. | 13.0 | VII |
| More media focus on rice policy, cost recovery, continuous flow , cropping patterns and water savings, etc. | 14.2 | VI |

These responses confirm the findings of the benchmark review team during a number of meetings with WUAs. The stakeholders were insistent that the psychological boost to a nascent farmer's organization such as a Branch Canal Organization generated by a visit from senior ministerial officials is incalculable.

### 3.3 Conclusions Drawn from the Stakeholder Opinion Measuring Process

The results of this focus group brainstorming process, using the seven question format as the idea-generating catalyst, point out a number of major concerns that will need to be addressed if the PIM process is to take root in Egyptian rural society and within the GOE. The stakeholders are consistent in demanding more frequent and more substantive contact with government officers at all levels. They regard this contact as the fundamental basis for cooperation and communication. They are concerned about the pattern of increasing regulatory infractions, and expect the government line agencies to move faster rather than slower against those farmers who abuse the irrigation system. This would apply as well to contractors who do poor work, and government officers who take no action to ameliorate these and other abuses.

Additionally, the stakeholders declared a keen interest in having additional media focus on proposed rice policy changes, irrigation cost recovery, as well as the implications and prerequisites for 1) a continuous flow water delivery, 2) changes in agricultural cropping patterns, and 3) issues related to water savings and reuse in the IIP areas, particularly as water becomes scarcer in future years.

# 4 OPTIONS FOR QUALITATIVE EXPANSION OF PARTICIPATORY IRRIGATION MANAGEMENT IN EGYPT

## 4.1 Description of Identified Options for Consideration

The outcome of this Tranche II benchmark achievement is a proposal for future actions based on interviews, questionnaires, discussions and observations of systems on field trips. The conclusions are proposed as four possible options for approaching expansion of PIM in Egypt. These options are summarized as follows:

- **Option 1 - Continue expansion of the present IIP using current strategies for WUA development;**
- **Option 2 - Establish Water User Organizations only on branch canals under the administrative purview of the IIP;**
- **Option 3 - Establish Branch Canal Water User Organizations in IIP and non-IIP areas;**
- **Option 4 - Modify and improve the IIP strategy of water user organizing, for WUAs and branch canal organizations in IIP as well as non-IIP areas.**

The last proposed option listed above was approved at the EPIQ/WRRP Steering Committee Round Table meeting[18].

## 4.2 Costs and Benefits of Policy Options

Table 4-1 illustrates the major considerations implied for each of the four options when assessing criteria of technical and administrative feasibility, social acceptance, cost and institutional change.

[11] The Round Table meeting took place in Ismailiya on April 29-30, 1998 and, in addition to the members of the Steering Committee, was attended by officers from USAID, the EPIQ/WRRP team, representatives from other APRP projects in Egypt, as well as a varied array of farmers, scholars, researchers and scientists working in this field .

| Table 4-1 Alternative Policy Options for Expanding PIM in Egypt | | | | |
|---|---|---|---|---|
| **Criteria/Options** | Continue WUA strategy as in IIP | Add WUA organizations in IIP areas | Branch Canal WUA organizations in IIP and non-IIP areas | Modified WUA approach and mechanism in non-IIP areas |
| **Costs** | | | | |
| **1.Financial** | Very high | very high | low | Medium |
| **2. Staff** | Very high | very high | low | Medium |
| **3. Time for implementation** | Very high | very high | low | Medium |
| **4. Savings in Admin. Time** | Medium | High | Medium | Very High |
| **Technical Feasibility** | High | High | High | High |
| **Institutional Changes** | | | | |
| **1. Legal** | None | Some | Some | Some** |
| **2.Policy changes** | None | Some | Medium | High |
| **Socially Acceptable** | Medium | Medium | Low | High |
| **WUA Resource Mobilization** | Low | Medium | low | very high |
| **Impact on System Performance** | High | High | medium | very high |

### 4.3 Identified Practical Options for PIM Expansion

The following options were developed by the EPIQ task group in collaboration with MPWWR, and are an outcome of the stakeholder consultation process.

**4.3.1** ***Option one*** proffers that no changes be made to the present institutional strategy of forming WUAs . Further, it suggests that the IAS continues in its present configuration modus operandi, and that the focus remains on establishing and strengthening mesqa-level WUAs. This is a high up-front investment option, which few countries can afford to adopt as a national policy for wider replication. Financial costs and lengthy duration in implementation are very high.[19]

It is no longer reasonable to assume, as many did during earlier phases that all mesqas require a full package of improvements. Experiences from many countries support the concept of "customizing" water channel improvements to maximize production benefits, rather than maintaining a standard package of construction improvements. While there may be some areas where improvements would reduce return flow and possibly save some water, these are areas typically found in areas of the Nile delta near the tail reaches of major canals.

**4.3.2** ***Option two*** program implementation should have been completed well before this time, as per the master plan IAS Strategy developed in 1990, and subsequently revised in 1992 and 1995. For reasons elucidated below, a program for developing water user federations was not a fundamental part of the program. For example, in Upper Egypt there occurred major civil disturbances, especially in the Malawai area, where on two branch canals having well-organized mesqa WUAs, the prevailing internal conflict prevented the formation of federations. In other areas, there were lengthy delays in implementing water delivery continuous flow and farmers lost interest in the process. Expansion of IIP to new areas, due to overly ambitious physical targets combined with socio-political pressure, has resulted in a transfer of IAS staff away from the old areas. Now there is no longer adequate staff in the old IIP areas to implement a program of water user federation development.

One additional constraint in the IIP (particularly in the areas funded through assistance by USAID) was a faulty contract mechanism that allows for excessive monetary advances before and during construction, thus delaying completion in a major way. For example, up to ninety percent is made in advance of final completion. But as the contractor receives a 25 percent advance on new contracts he is free to move on to these new contracts, leaving the earlier ones

[12] Researchers say it would take until the year 2050 to cover the entire irrigatable command throughout Egypt using the present IIP strategy and pace of implementation.

incomplete. Some of these mesqas have been "under construction" for three to five years and unless a force majeure clause is implemented, they may never be completed. In Balaqtar Canal, for example, the IIP had to arrange a contract with a second contractor in order to complete the mesqas abandoned by the first, i.e. absconding, contractor. In another case, a former IIP General Director paid a contractor in full, and apart from taking cumbersome legal action, there was no practical way to force him to complete the construction.

#### 4.3.2.1 Staff Retention in the IIP and IAS

For the last two years the IIP and the IAS have developed a critical shortage of technical manpower combined with misapplication of technical expertise. For example, of the seven general directors four had no prior experience in the IIP. During the course of this report preparation, it was reported by many senior officers in both organizations, that this shortcoming reflected an overall loss of morale resulting from senior management lack of basic awareness of, and sensitivity to, an innovative PIM program in Egypt. Flexible and broad-based management attitude and skills are the *sine qua non* required for implementing a complex project aiming for social change as well as production targets. A participatory irrigation management project needs to be perceived by senior officials and politicians as being more than merely a construction project. This must be reflected in the level of inter-ministerial support it receives not only in its nascent stage but also further into its implementation as it gains maturity and experience. This last point is particularly crucial as the program encounters problems in the form of political interference, resistance from different quarters, and competition for diminishing resources as new programs come on line. By the end of 1997 IIP management reported a shortfall of approximately 66 technical engineers, detailed in the following list (identified by MPWWR sanctioned staff categories):

Inspectors (2)
Director of Works (13)
Asst. Dir. Of Works (5)
Civil Engineers (42)
Mechanical Engineers (4)

While the IIP situation is more critical because of its overall significance in Egypt's goal for national privatization of the irrigation system, similar shortages of engineering expertise are

reflected in other sectors of MPWWR. As young engineering graduates enter the work force they are drawn to more attractive compensation packages offered by the private sector. Government employment, in general, is losing its traditional lure of job security as private sector opportunities for fresh engineering graduates increase. In order to foster a meaningful PIM program in Egypt for the future, the MPWWR must evaluate its present staffing strategy and determine if it is in keeping with the exigencies of current Egyptian market forces. One reality that certainly must be faced is the recognition that private sector engineering will continue to expand in Egypt, and that a significant level of work that had been heretofore part of the MPWWR's mandate may have to be channeled to the private agencies.

A future MPWWR will not have the estimated 80,505 staff members, of which 8056 would need to be professional engineers, in order to implement a national PIM replication program. (Refer to report of the MPWWR and IIMI, Water Resources, Irrigation Operations and Institutional Issues: An analysis of the Ministry of Public Works and Water Resources, Government of Egypt, 1995) An informal 1992 analysis comparing salaries of engineers of engineers in India, Pakistan, Bangladesh, Nepal, Sri Lanka and Egypt illustrates that Egyptian engineers receive a far lower compensation package than their counterparts, in other countries. Surprisingly, the UNDP human development indices and the GNP for Egypt are higher than that found in these other countries. Pakistani and Indian engineers receive, respectively, four and three times the salaries and many additional benefits (e.g. assigned vehicle, housing, medical benefits, etc.) than Egyptian engineers. Egyptian base salaries have remained constant for many years, and increases are accrued in small increments, rendering it difficult for young engineers to maintain a suitable lifestyle without relying on other sources.

A further disincentive that goes to the heart of the staffing shortage issue is a perverse method for management of staff that values seniority over competence, coupled with a non-responsive internal staff evaluation mechanism. The result of these combined elements is a disillusioned cadre of young, competent and energetic engineers. Another indicator of this malaise in MPWWR can be demonstrated by the increasing number of MPWWR retirees engaged because there are no replacements at that level of expertise and experience from within existing ministerial ranks. (cf. aforementioned MPWWR/IMMI Report of June, 1995, pages 77 to 89)

In the IAS at present there is a shortage of 11 civil and 9 agricultural engineers.[20] In determining its revised policy the IIP and the MPWWR should begin to find ways to resolve these acute staffing constraints. This is important not only for the completion of the mesqa construction and building sustainable WUAs, but is required in order to support the process of developing viable branch canal organizations.

**4.3.3** ***Option three*** is one that a majority of stakeholders in the focus group workshops indicated as one acceptable alternative to the present course of implementation. This is not specifically in reference to a WUA federation, but to an apex organization for the operation and maintenance of the branch canal. It does employ a bottom-up strategy but initiates participatory action at an intermediate apex level of the irrigation system. This option would included main and branch canal improvements, plus closing off the tail escapes of mesqas and providing gated intakes with downstream control of water supplies. Taken together, these are likely to form a powerful incentive for farmers to take over management of a branch canal: a stable water supply is desired in a more demand-driven system, rather than the present delivery under a rotation system. This approach should be attempted initially on a trial basis and thoroughly analyzed as it is the option here with the lowest implementation cost levels. The problem with this approach is an organizational one, i.e. how does one organization effectively represent the interests of a vast number of water users? For example, on each branch canal there would likely be an average of ten to twelve mesqas, and approximately 100 farmers per mesqa. The basic premise of participatory irrigation management, is that any organization must be of a manageable size and scale, sufficient to carry out its responsibilities in a manner that represents the interests of all its member constituents. This approach would seem to point to a need to keep membership in any one organization to a manageable size, and in the case of larger bodies, to make certain that a democratic process is used in formation. It has been suggested that some of the WUAs under the IIP may be a too large for effective and efficient organization.

**4.3.4** ***Option four***, in many ways, is the most comprehensive and ambitious approach, and contains significant initial investment costs. The literature on PIM illustrates that in some countries, transfer of systems, or parts of systems, to user groups is simply a means to get

[20]For example, at Esna there is only the IAS director, no civil engineers, and no agricultural engineers. At Balaqtar Canal other than the IAS director there is no civil engineers. At Bahr e Saidi, the completion of the mesqas in the old IIP is stalled because there is no civil engineer to supervise the work.

farmers to use their own resources to maintain upkeep of systems that have become moribund or too expensive for the government exchequer. This is not, in itself, a valid reason for transferring responsibilities to user groups at the branch canal level. The objective should be to improve system performance more effectively and efficiently. Integral to *Option four* is a number of institutional actions and changes, including the following:

- Undertake a program designed to re-assess incomplete mesqas of the old and new areas of IIP as soon as possible, using objective assessment criteria. Particular attention should be given to determining present validity of mesqa improvements on each location, in order to conclude if physical improvements are still desirable, feasible and recommended.

- If MPWWR agrees to continue with the participatory irrigation management approach at both mesqa and branch levels , ministerial management capabilities are in serious need of upgrading. In some cases, weak technical expertise has resulted in degrees of disruption and obstruction. A number of senior staff members in the IIP, including the rising middle management cadre, would benefit greatly from *action training* on management skills required to implement a complex program where problems of social and economic dynamics are more important than mastering the "hardware". In this case, the "hardware", i.e. engineering requisites for mesqa improvements, are well established and reasonably understood, if not always applied consistently. Officers with long experience in the IIP and/or the IAS are aware to some extent of the fundamental principles and techniques of participatory irrigation management that need to be kept in constant consideration. However, for the many who do not fall into this category, a training input along the lines of "diagnostic analysis", developed about 10 years ago under the USAID-funded Water Management Synthesis II project would prove very useful. Other effective courses have been developed by management centers at the University of Maryland and Cornell University. These courses stress applied action research skills management in an interdisciplinary venue.[21] It is recommended that this training be executed as early as possible.

[21] The MPWWR minister has expressed a desire to have this course included in the program to help upgrade the old EWUP Project Identification Course of the 1970s.

- Water user apex organizations on branch canals and possibly irrigation districts and water boards need to be considered and formed on a provisional basis determining where the greater chances for success can be found. WUAs and branch canal organizations will be encouraged to employ their own technicians, e.g. ditch riders, canal weed controllers, canal structure monitoring, financial and record keeping etc.

- Implement physical improvements to main and branch canals in critical reaches of system. Apply controls and selection criteria for any future areas to be adopted for IIP-type improvements, specifically in those areas where significant results in production and water delivery can be achieved, and where users are fully empowered as irrigation management districts.

- On each branch canal two demonstration mesqas should be undertaken using the recommended participatory approach.

- Credit should be made available to WUAs and apex organizations for the purpose of contracting and improving new mesqas under community management.

- Determine prerequisites for district irrigation associations, water boards and water conservancy districts as well as a nation-wide assembly of water users. The apex bodies and assembly would require subsequent changes in Egypt's laws.

- The GOE is advised to determine feasibility of returning 75 percent of land revenue water fees to the branch canal organizations for O and M purposes, and 25 percent to the MPWWR for main canal maintenance. The branch canal organizations would need to adopt effective means for mobilizing resources to supplement the 75 percent of the land revenue irrigation service fee increment; this could be achieved by implementing an acceptable surcharge from water users for additional services they will receive as a result.

- A process will need to be devised which results eventually in an internal ministerial policy advisory unit on PIM, reporting to and advising the Minister. This process would

be initiated by establishment of an Action Team, (to be advised by the EPIQ/WRRP senior sociologist).

### 4.4 Legal Considerations

Part of this benchmark activity included a review of Law 213 of 1994, which was an amendment to the 1984 Irrigation & Drainage Law. Law 213 and the subsequent Ministerial Decree 14900 of 1995 establish the legal basis and by-laws for WUAs, and mesqa improvement cost recovery. Meetings were held with the MPWWR Legal Advisor, members of the Peoples Assembly Agricultural Committee and others with a legal perspective on irrigation devolution. The preliminary understanding of this review is that an amendment to the 1994 amendment might be sufficient to allow for the legal formation of apex organizations. A necessary caveat, however, is that any alteration to the legal code should not make it difficult to organize, register and build strong apex organizations at the branch canal or district levels. The legislation must be flexible to allow for changing exigencies over time, and must be supported by appropriate policies which provide positive incentives to water users. The information gathered from stakeholders during the process of preparing this present report, indicates what these incentives should entail. A study[22] conducted as part of this benchmark activity identified recommended steps to streamline and strengthen laws affecting water user participation in irrigation management.

[22] cf. Shouman, Eng. Hassan. "The Legal, Administrative and Media Support for Increasing Efficiency of Water Use in Egypt." Cairo: EPIQ/WPRP, 1998.

# 5 SUMMARY RECOMMENDATIONS

In order to successfully implement a WUA program in non-IIP areas, it is recommended that the following steps be taken as early as possible:

- The MPWWR Minister should appoint a participatory irrigation management Action Team comprised of ministerial staff with demonstrated experience in practical implementation of participatory irrigation management in Egypt, and representatives of water users.

- The Action Team will identify two branch canals where it is gauged to be technically sound, economically feasible and socially acceptable by water users to implement pilot branch canal-level apex level organizations. The branch canals would be selected as per the following definitions:

    - One branch canal in an IIP area where WUAs have been formed and are in operation.
    - One branch canal in a non-IIP area where no WUAs have been formed.

- MPWWR minister will issue instructions to establish a work program for the two branch canals that will be *process documented*. The results of this exercise will be evaluated on a continuing basis by MPWWR and the EPIQ support team.

- In order to inculcate an appreciation for international experiences in development of water user apex organizations, the Action Team would be embark on a training study tour: 1) to see a successful water user apex structure in a developing country for one-week, and then 2) to the Western USA for a final week of technical training and visit to a major user-managed water district. Each team member will be responsible for one special dimension of water user apex organization structure and function: e.g. legal, financial, operational, maintenance, institutional and resource mobilization. They will each prepare a report on the systems visited. The reports will be synthesized into one final report, in English and in Arabic, which will be presented to the Minister on the team's return to Egypt. The Action Team will devise and implement a schedule of

meetings, training sessions and seminars in Egypt, with the assistance of the EPIQ team, to foster greater understanding of which approaches and methodologies are most suitable to the Egyptian environment.

- As part of the above mentioned program, the Action Team will undertake a training program for IAS and district engineers to prepare them and WUA members for implementing WUA organizations at the branch canal and higher levels of the irrigation system.

- It would be advisable for the MPWWR to carefully weigh the potential benefits related to the establishment of PIM for the El Salaam Canal, North Sinai and Toshka areas, and to develop organizational plans accordingly.

- The Action Team will coordinate aggregation of monitoring data, and information gathered from special studies, in order to regularly assess lessons learned in the irrigation privatization process.

- Based on results achieved during this implementation period (July 1, 1998 to June 30, 1999) the Action Team, at the discretion of MPWWR, may be continued on a long-term basis as a PIM advisory council for the MPWWR. The Action Team will be assisted by the EPIQ/WPRP technical assistance team members in the planning and execution of its tasks; the Senior Sociologist of the EPIQ team should be designated as principal adviser to, and member of the Action Team. It is strongly recommended that USAID designate a senior project officer to be involved with the Action Team in its deliberations, field activities and training.

# 6 WATER USER ASSOCIATION ROUND TABLE MEETING & WORKSHOP

The report of the Round Table meeting of April 29-30, 1998 held at Ismailiya has been presented under separate cover. The final recommendations adopted by the attendees and the project Steering Committee were as follows:

1. Generally support the overall expansion of participatory irrigation management in the irrigation system of egypt.

2. Encourage establishment of water user associations in areas not covered previously under any iip phase, as well as improving the strategies and policies of development in the following fields:

a) Giving first priority to completion of the remaining IIP mesqas as expeditiously as possible.[23]

b) Establishment of criteria for selecting major potential irrigation development sites in the future, on the basis of intensive implementation over large areas at the irrigation district level.

c) Establishment of water user apex organizations on the branch canals allowing for future expansion to the irrigation district level. Alternatively, there should be established a mechanism for operation and maintenance at the branch canal level.

d) Developing the main and the branch canals in a way that improves the achievement of IIP objectives/targets.

e) Reviewing the current legal ordinances and institutional regulations (related to water user organizations), and further amend and expand them to strengthen the current and future needs of irrigation improvement.

f) Studying and analyzing the organizational, legal, and administrative requirements to support the functioning and authority of WUAs and water user apex organizations.

g) Strengthening the formal institutionalization of the IAS in the ministry in order to enable it to perform its tasks efficiently.

h) Conducting studies by NWRC to assess and evaluate the irrigation improvement project for recommending alternative adaptive strategies and applications to the most effective results.

In order to achieve these objectives, it was concluded that action must to be taken to implement the following steps:

- Establish by ministerial decree an Action Team, comprised of IIP and other MPWWR officials and other key players experienced in the development of participatory water user organizations.

- Select initial two branch canals which are technically and economically feasible and acceptable to the water users for forming branch canal user organizations: one in an IIP area having WUAs, and the other in a non-IIP area, having no WUAs). Establish all necessary decrees and recommendations required to fulfill this objective.

- Design & conduct a training course for the IAS staff, district engineers and WUA members to orient them to the exigencies of branch canal water user organizations and other levels of participatory irrigation management.

- Conduct a study and prepare plans for establishing privatized water user associations in the El Salaam, North Sinai, and Toshka Projects.

[23] However, given the extended time lag in project implementation, this should be undertaken following verification that the mesqa improvements are still technically and economically justified.

# 7 PROMOTION OF WATER USER ASSOCIATIONS WITH FARMERS IN NON-IIP AREAS

In addition to the development of policies, this benchmark also requires initiation of efforts by MPWWR to build awareness of WUA organizations among non-IIP farmers.

MPWWR has *initiated the promotion of this process* through the following means:

- Conducting of focus group workshops for engineers and farmers in both IIP and non-IIP areas. A total of 22 farmers in IIP and 33 in non-IIP areas took part in the workshops.

- Conducting of a training workshop for district engineers on communication skill development, conducted by MPWWR and GreenCom (a USAID-financed technical assistance project) which commenced from May 3, 1998.

- As a result of the announcement on May 3, 1998 by the MPWWR Minister to establish WUAs in non-IIP areas, the IAS has initiated the process of holding dialogue with groups of non-IIP farmers in Mansoura and Zagazig governorates, and at Balaqtar (western Delta), and will expanding to other areas in the future. IAS governorate directors have been appointed and are now in the process of recruiting field teams. It is expected that dialogues with farmers in these areas will start from August 1998, by which time the field teams will be in place and will have received initial orientation and training.

# 8 POSTSCRIPT

On May 3, 1998, at the inauguration of the USAID/MPWWR/GreenCom-sponsored Training Workshop for District Engineers conducted in Alexandria, His Excellency, the Minister of Public Works and Water Resources, announced a decision that establishment of WUAs henceforth will be expanded to non-IIP areas. All concerned sectors, departments and donors were asked to take note of this, and immediately start preparation for implementation.

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